

WHAT IS CLAIMED IS:

1. An *Arabidopsis thaliana* double mutant *ssl2 slr* having a mutation in at least one base of the *SSL2* genomic gene shown in SEQ ID NO: 3, obtained by:  
5 treating an *Arabidopsis thaliana* *slr* dominant mutant (FERM BP-8385), which has no lateral roots, with a mutagen; preparing plants of the next generation of the mutagen-treated *slr* dominant mutant; and selecting a plant that basically preserves phenotypes of the *slr*  
10 dominant mutant but has lateral roots from the plants of the next generation.

2. An *Arabidopsis thaliana* double mutant *ssl2 slr*, which has recovered the capability of lateral root formation in an *Arabidopsis thaliana* *slr* dominant  
15 mutant (FERM BP-8385) that has no lateral roots, due to an additional mutation of at least one base of the *SSL2* genomic gene shown in SEQ ID NO: 3 in the *slr* dominant mutant.

3. An *Arabidopsis thaliana* double mutant *ssl2 slr*, which has recovered the capability of lateral  
20 root formation in an *Arabidopsis thaliana* *slr* dominant mutant (FERM BP-8385) that has no lateral roots, due to an additional mutation of the *SSL2* genomic gene shown in SEQ ID NO: 3 in the *slr* dominant mutant, wherein  
25 the additional mutation is selected from the group consisting of the following (A) to (D):

(A) a mutation in which the 852th base "G" of

the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A";

(B) a mutation in which the 4734th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A";

(C) a mutation in which the 1757th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A"; and

(D) a mutation in which the 1546th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A".

4. A mutant gene having a mutation in at least one base of the SSL2 gene (cDNA) shown in SEQ ID NO: 1, whose expression enables a phenotype of a mutant that has no lateral roots to be recovered.

5. A mutant gene having a mutation in at least one base of the SSL2 genomic gene shown in SEQ ID NO: 3, whose expression enables a phenotype of a mutant that has no lateral roots to be recovered.

6. A mutant gene of the SSL2 gene (cDNA) selected from the group consisting of the following (a) to (c):

(a) a mutant gene in which the 566th base "G" of the SSL2 gene (cDNA) shown in SEQ ID NO: 1 has been substituted with "A";

(b) a mutant gene in which the 1005th base "G" of the SSL2 gene (cDNA) shown in SEQ ID NO: 1 has been substituted with "A"; and

(c) a mutant gene in which the 901th base "G" of the SSL2 gene (cDNA) shown in SEQ ID NO: 1 has been substituted with "A".

5 7. A mutant gene selected from the group consisting of the following (d) to (g):

(d) a mutant gene in which the 852th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A";

10 (e) a mutant gene in which the 4734th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A";

(f) a mutant gene in which the 1757th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A"; and

15 (g) a mutant gene in which the 1546th base "G" of the SSL2 genomic gene shown in SEQ ID NO: 3 has been substituted with "A".

8. A protein selected from the group consisting of the following (a) and (b):

20 (a) a protein comprising the amino acid sequence of SEQ ID NO: 2 and having a function of maintaining a mutation whereby lateral root formation is blocked; and

(b) a protein comprising an amino acid sequence of SEQ ID NO: 2, in which one or a few amino acids of the amino acid sequence have been deleted, substituted and/or added and which has a function of maintaining a mutation whereby lateral root formation is blocked.

25

9. A gene encoding a protein selected from the group consisting of the following (a) and (b):

(a) a protein comprising the amino acid sequence of SEQ ID NO: 2 and having a function of maintaining a mutation whereby lateral root formation is blocked; and

(b) a protein comprising an amino acid sequence of SEQ ID NO: 2, in which one or a few amino acids of the amino acid sequence have been deleted, substituted and/or added and which has a function of maintaining a mutation whereby lateral root formation is blocked.

10. A gene selected from the group consisting of the following (c) or (d):

(c) a gene comprising the DNA sequence of SEQ ID NO: 1 and encoding a protein having a function of maintaining a mutation whereby lateral root formation is blocked; and

(d) a gene comprising a DNA sequence of SEQ ID NO: 1, in which one or a few bases of the DNA sequence have been deleted, substituted and/or added and which encodes a protein having a function of maintaining a mutation whereby lateral root formation is blocked.